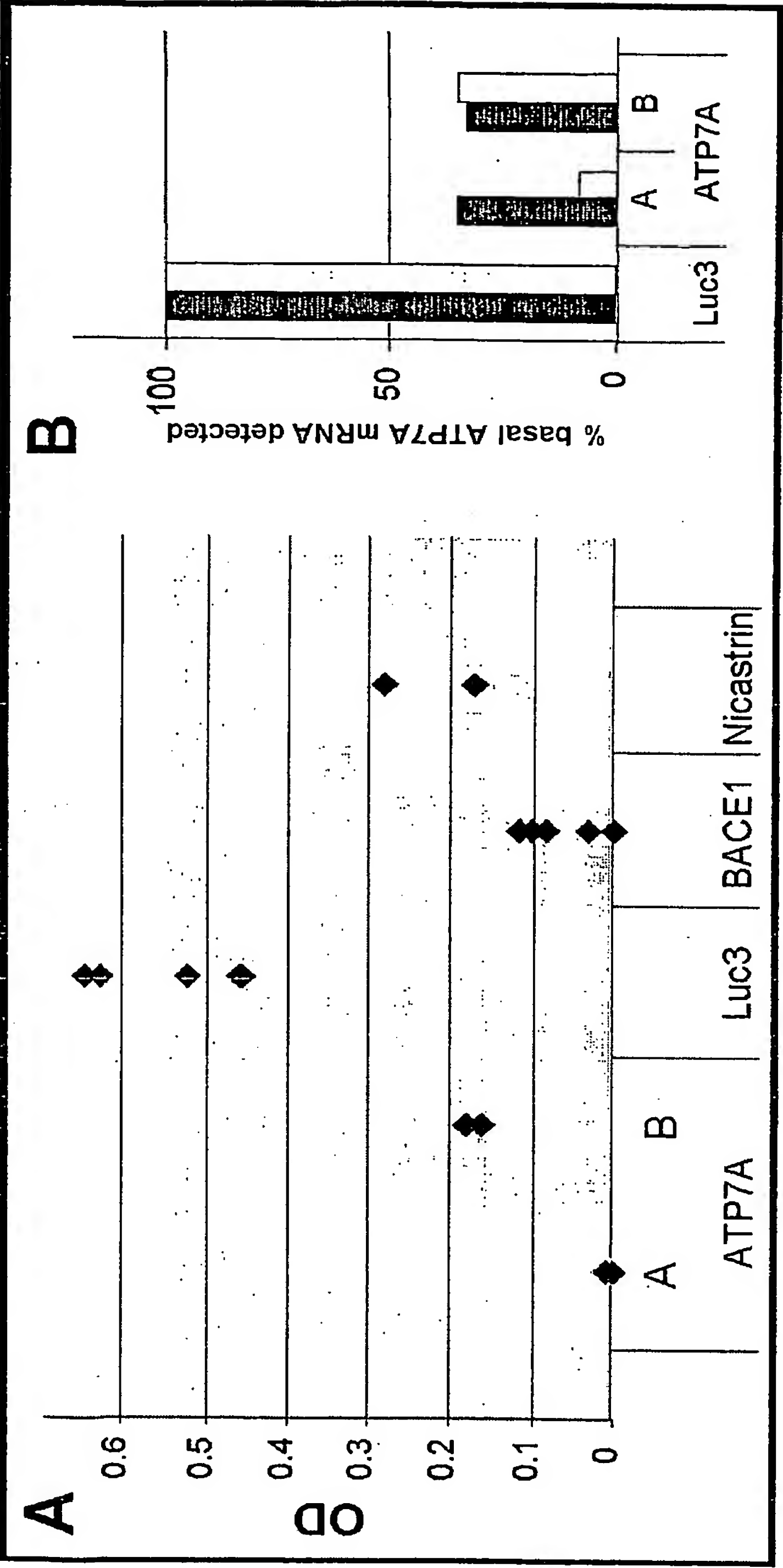


Figure 1:



**Figure 2:**

MRKLSIRKRD	NNLLKPSSAS	SLGIAVSLGR	PVLSRSSSGT	VNLLEEVGLH
IRDTAFSSTK	LLEAISTVSA	QVEELAVHNE	CYDPSMGVNS	VTISVEGMT
NSCVWTIEQQ	IGKVNGVHHI	KVSLEEK NAT	IIYDPKLQTP	CTLQEAIDDM
GFDIAVHNPD	PLPVLDTLTF	LTVTASLTLP	WDHIQSTLLK	TKGVTDIKIY
PQKRTVAVTI	IPSIVNANQI	KELVPELSLD	TGTLEKKSGA	CEDHSMAQAG
EVVLKMKVEG	MTCHSCTSTI	EGKIGKLQGV	QRIKVSLDNQ	EATIVYQPHL
ISVEEMKKQI	EAMGFPAFVK	KQPKYLLKGA	IDVERLKNTP	VKSSEGSQQR
SPSYTNDSTA	TFIIDGMHCK	SCVSNIESTL	SALQYVSSIV	VSLENRSAIV
KYNASSVTPE	SLRKAIEAVS	PGLYRVSITS	EVESTSNSPS	SSSLQKIPLN
VVSQPLTQET	VINIDGMTCN	SCVQSIEGVI	SKKPGVKSIR	VSLANSNGTV
EYDPLLTSP	TLRGAIEDMG	FDTLSLTNE	PLVVIAQPSS	EMPLLTSTNE
FYTKGMTPVQ	DKEEGKNSSK	CYIQVTGMT	ASCVANIERN	LRREEGIYSI
LVALMAGKAE	VRYNPAVIQ	PMIAEFIREL	GFGATVIENA	DEGDGVLELV
VRGMTASC	HKIESSLTKH	RGILYCSVAL	ATNKAHIKYD	PEIIGPRDII
HTIESLGFEA	SLVKKDRSAS	HLDHKREIRQ	WRRSFLVSLF	FCIPVMGLMT
YMMVMDHHFA	TLHHNQNM	SK	FLERQILPGL	SVMNLLSFL
CVPVQFFGGW	YFYIQAYKAL	KHKTANMDVL	IVLATTIAFA	YSLIILLVAM
YERAKVNPIT	FFDTPPMLFV	FIALGRWLEH	IAKGKTSEAL	AKLISLQATE
ATIVTLDSN	ILLSEEQVDV	ELVQRGDIK	VVPGGKEPVD	GRVIEGHSMV
DESLITGEAM	PVAKKPGSTV	IAGSINQNGS	LLICATHVGA	DTTLSQIVKL
VEEAQTSKAP	IQQFADKLSG	YFVPFIVFVS	IATLLVWIVI	GFLNFEIVET
YFPGYNRSIS	RTETIIRFAF	QASITVLCIA	CPCSLGLATP	TAVMVGTVG
AQNGILIKGG	EPLEMAHKVK	VVVFDTGTI	THGTPVVNQV	KVLTESNRIS
HHKILAIVGT	AESNSEHPLG	TAITKYCKQE	LDTETLGTCI	DFQVVPGCGI
SCKVTNIEGL	LHKNNWNIED	NNIKNASLVQ	IDASNEQSST	SSSMIIDAQI
SNALNAQQHK	VLIGNREWMI	RNGLVINNDV	NDFMTEHERK	GRTAVLVAVD
DELCGLIAIA	DTVKPEAELA	IHILKSMGLE	VVLMTGDN	SKTARSIASQVG
ITKVFAEVLP	SHKVAKVKQL	QEEGKRVAMV	GDGINDSPAL	AMANVGIAIG
TGTDVAIEAA	DVVLIRNDLL	DVVASIDLSR	KTVKRIRINF	VFALIYNLVG
IPIAAGVFMP	IGLVLPQW	MG	SAAMAASSVS	VVLSSLFLKL
LPARSQIGQK	SPSEISVHVG	IDDTSRNSPK	LGLLDRIVNY	SRASINSLLS
DKRSLNSVVT	SEPDKHSLLV	GDFREDDDTA	L	

## Figure 3:

ATP7A MRKLSIRKRDNNLLKPSSASSLGIASVSLGRPVLSRSSSGTNNLLEEVGLHIRDATFSSTKLEAISTVSAQVEELAVHNE  
 ATP7B -----MPEQERQITAREGAS-----RKILSKLSLPTR-----AWEPAMKKSFAFDNVGYEGG-----LD  
 Consensus/80% .....b.cp-pplh..ptAS.....R.lLS+.S.st.....hb-sAbpp\*bhb-slth.tt.....-

ATP7A CYD:SMGVNSVTISVEGMTCNSCVWTIEQQIGKNGVHHIKVSLEEKNTIYD:KLQTPKTLQEAIDDMGFDAVTHNP  
 ATP7B GLG:SSQVATSTVRILGMTQCSCVKSIEDRIENLKGIIISMKSLEQDSATVKV:SVVCLQQVCHOIGDMGFASIA---  
 Consensus/80% sbsPS..Vs\*stlplbGMTCPSCVb\*IEppitlplGlbpbKVSLEPcsATlbYsPpl.s.pplpc.IsDMGF-Asih...

ATP7A PLPVLTDTLFLTVTASLTLPWDHIQSTLLKTKGVTDIKIYPQKRTVAVTIIPSIIVNANQIKELVPELSLDTGTLEKKS  
 ATP7B -----EGKAAS-----  
 Consensus/80% .....E.Kttt

ATP7A CEDHSMAGAGEVVLKMKVEGMTCHSCTSTIEGKIGKLOGVQRIKVSLENDQEAATVYQ:HLISVEEMKQIEAMGEPAFVK  
 ATP7B WPSRSLP-AQEAUVKLVEGMTQCSCVSSIEGKVRKLOGVVRKVSLSNQEAATVYQ:YLIQPEDLRDHVNDMGFEAAIK  
 Consensus/80% h.s+Sbs.A.EsVlKb+VEGMTCPSCS\*IEGKl.KLQGV.RlKVSLSNQEAAsIsYQPaLlpsE-b+cplpsMGF.AhIK

ATP7A KQPKYLKLGADVERLKNT----VKSSEGSQQRSPSYTND----TATFIIDGMHCKSCVSNIESTLSALQYVSSIVVS  
 ATP7B SKVAPLSLGPIDIERLOSTNPKRLSSANQNFNNSETLGHQGSVHVTLQLRIDGMHCKSCVSNIEENIGQLLGVSIOVS  
 Consensus/80% pps..LpLGSIDIERLpsT....PlpStp.sbpps.\*bsppt....ThpbbIDGMHCKSCV.NIEpslt.LbhVpSI.VS

ATP7A LENRSATVKYNASSVTESIRKATEAVS:GLYRVSTISEVES--TSNSPSSSSLOKIE:LNVSQPLTQETVINIDGMTCN  
 ATP7B LENKTAQVKYDPSCTS:VALQRAIEALP:GNFKVSLPDGAEGSGTDHRSSSSSHSPGS:PRNQVQGTCTTLTATAGMTCA  
 Consensus/80% LEN+\*AbVKYssSss\*P.tLp+AlEAlSPG.a+VSls.sEt..TsppsSSSp....P.ps.sQshsppTlIsIGMTCS

ATP7A SCVQSIEGVISKPGVKSIKVSLSANSNGTVEYD:LLTS:ETLRGATEDMGEDATLSDTNEPLVIAQPSSEMPLLTSTN-  
 ATP7B SCVHSIEGMSIQLEGVQISVSLAEGTATVLYN:SVIS:EELRATEDMGFEASVSESCSTNPLGNHAGNSMVQTTDG  
 Consensus/80% SCVpSIEGHISpb.GvppIpVSLAptstTVbYsP.lhSPEpLrtAIEDMGF-A\*lsspspshtltp.St..sbtp\*Ts.

ATP7A -EFYTKGMT:VQDKEEGKNS-----SKCYIQVTGMTCAVCNTERNLRREEGIYSILVALMAGKAEVR  
 ATP7B TPSTVQEVATHTGRLPANHAPDILAKSPQSTRAVAPQKCFLOIKMTCAVCNTERNLOKEAGVLSVLVALMAGKAEIK  
 Consensus/80% ..h.sp.hsPhps+b.tppt.....pKCalQlpgMTCAVCNTERNLp+E.GlSILVALMAGKAEI+

ATP7A MN:AVIQ:PMIAEFIRELGEATVIEADEGQVLELVVRGMTCAVCNKESSLTKHRTLYCSVALATNKAHIKYD:E  
 ATP7B YD:EVIO:LEIAOFIODLGEAAVMEDYAGSDGNIETITGMTCAVCNIESKLTRNGITYASVALATSKALVFD:E  
 Consensus/80% YsP.VIQP.biApFip-LGF.AsVbEshs.tDGSiELslpGMTCAVCNpIESpLT+ppGiHysVALATSKAbIKaDPE

ATP7A IIG:RDIIHTIESLGEASLVKKDRSASHLDHKRETRWRRTVLSLFFCI:VMGLMTYMMVMDHHEATLHHNQMSKEE  
 ATP7B IIG:RDIEKITEEIGEHASLAQRNPNAHLDHKMEIKQWKSLCSLVEGI:VMALMIYMLIPSN-----  
 Consensus/80% IIGPRDII+hIEpIGFCASLp+s.sAphLDHKbEI+QW++SFLSLhFsIPVMTLMhYMBI.sp.....

ATP7A MINLHSMFLERQIL:GLSVMNLLSFLLCVPVQFFGGWYFYIQAQKALKHKTANMDVLIVLATIATFAYSIIILLVAMYE  
 ATP7B --EPHOSMVLNHNII:GLSILNLIFFILCTFVQLGGWYFYQAQKSLRHSANMDVLIVLATIATFAYSIIILLVAVAE  
 Consensus/80% ..p.HpSMhL+pilPGLSlnLl.FlLCs.VQbbGGWYFYIQAQKtL+H\*ANMDVLIVLAT\*IAasYSLIILIVAhE

ATP7A RAKVN:ITFEDT:MLEVFIALGRWLEHIAKGTSEALAKLISLOATEATVTLDSNILLSEEQVDVELVORGDIKVV  
 ATP7B KAERS:VTFEDT:MLEVFIALGRWLEHIAKGTSEALAKLMSLOATEATVTLGEDNLIITREEQVPMELVORGDIKVV  
 Consensus/80% +Ac.sPITFEDTPPMLFVFIALGRWLEHIAKtKTSEALAKLbSLQATEATVTLspDNlilpEEQVshELVORGDIKVV

ATP7A GGGK:VDGRVIEGHSVDESITGEAM:VAKK:GSTVIAGSINQNGSLICATHVGADTTLSQIVKLVEEAQTSKAT:IQ  
 ATP7B GGGK:VDGKYLEGNIMADESLITGEAM:VTKK:GSTVIARSINAGSVLIKATHVGNDTTLAQIVKLVEEAQMSKA:IQ  
 Consensus/80% PGGKFPVDG+VIEGP\*MsDESITGEAMPVSKPGSTVIA.SIN.pGSILIPATHVGSDTTLTQIVKLVEEAQhSKAPIQ

ATP7A QFADKLSGYFV:FIVFVSIAITLLVWVIGFlnFEIVETYP:GYNRSISRTETIIRFAFQASITVLCIAC:CSLGLAT:TA  
 ATP7B QLADRFSGYFV:FIIMSTLTLLVWVIGFIDFGVQKTF:NPNKHISQTEVIRFAFQTSITVLCIAC:CSLGLAT:TA  
 Consensus/80% QbAD+bSGYFVPFIlbShhTLlVWVIGFlsF.lVppYFPs.N+pISpTESIIRFAFQSSITVLCIACPCSLGLATPTA

ATP7A VMVGTGVAQNGILIKGGE:LEMAHKVKVVFQDKTGTITHTG:VNVQVKVLTESNRISHHKILAVGTAESENSE:LGTA  
 ATP7B VMVGTGVAQNGILIKGK:LEMAHKIKTVMFKTGTITHTG:VVMRVLLIGDVATLPLRKVLAVGTAEASSEH:LGVA  
 Consensus/80% VMVGTGVAQNGILIKGKcPLEMAHKlKsvHFDKTGTITHTGsP.V.pVblLs-ssplsb+KlLAVGTAEtsSEHPLGSA

ATP7A ITKYCKQELD:TETLGTCTDFQV:GCGISCKVTNIEGLEHKNWNIEDNNIKNASLVQIDASNEQSSSTSSMIIDAOISN  
 ATP7B VTKYCKEELG:TETLGYCTDFQAV:GCGIGCKVSNVEGILHS-----ERPLSAPASHLNEAGSLPAEKDAP--  
 Consensus/80% lTKYCKpELsTETLGHChDFQsVPGCGItCKV\*NIEGILh+s.....p.lphsASpbptsS.shbbDA....

ATP7A ALNAQQHKVLIENREWMIRNGLVINNDVNDFTHEHERKGRTAIVLAVVDELCLGLIAIADTVKPEAELATHILKSMGLEVV  
 ATP7B ----QTFSVLIGNREWLRRNGLTISDDVSDAMTDHEMKQTALIVADGVLCGMIAIADAVKQEAALAVHTLOSMDGVVV  
 Consensus/80% ....QpapVLIGNREWBbRNLsIssDVSDhMT-HEbKGpTAlLVAIdS.LCGbIAIADsVK.EA.LAlHhLpSMGL-VV

ATP7A LMTGDNSTARSASQVGITKVFAEVL:SHKVAKVQLQEEGKRVAMVGDGINDS:ALAMANVGIAIGTGTDAIEAADV  
 ATP7B LITGDNRTARAIATOVGINKVFAEVL:SHKVAKVQELQNKSKVAMVGDGINDS:ALAQADMVGAIGTGTDAIEAADV  
 Consensus/80% LbTGDNPtARTIA\*QVGIsKVFAEVLPSHKVAKVpplQpCGK+VAMVGDGINDSPALAbashGLAIGTGTDAIEAADV

ATP7A VLIRNDLLDVVASIDLSRKIVKRIRINRFVFLIYNLVGI:IAAGVEM:IGLVLO:WMGSAAMAASSVSVLSSLFLKLYR  
 ATP7B VLIRNDLLDVVASIHLKRTVRRIRINVLALIVNLVGI:IAAGVEM:IGIVLO:WMGSAAMAASSVSVLSSLQKCYK  
 Consensus/80% VLIRNDLLDVVASICLS++TV+RIRINbVbALIYNLVGIPIAGVFMPIGIVLQPMGSAAMAASSVSVLSSLbLKH+Y

ATP7A K:TYESYELPARSQIGOKSPSEISVHVGIDTSTRNS:KLGLLDRIVNYSRASINSLLSDKRSLSNVVTSEP-DK:SLIVG  
 ATP7B K:DLERYEAQAHGHMKPLTASQVSVHIGMDRWRDS:RATPWQVSVSVQVLSLSTSDKPSRHSAAADDDGKWSLLN  
 Consensus/80% KpsbEpYeh.A+tpb..b\*sSp1SVHlGbDDp.RsSP+hs.bDpls.hSpsSisSLhSDK.SbpSssss-s.DKaSLLIs

ATP7A DFRÉDDDTAL  
 ATP7B GRDEEQYI--  
 Consensus/80% sbcE-p.h..